



Tactical Vehicle Safety



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Recent Tactical Vehicle Mishaps

DATE	Type Vehicle	# of Fatalities	Comments
2 July 04	HMMWV	1-Marine	Marine from 2/1 was operating a HMMWV that rolled into a canal while attempting to avoid an IED.
10 July 04	HMMWV	4- Marines	Marine from 3/1 rolled vehicle while attempting to negotiate the path around a security barrier, the vehicle slid into a canal and all four Marines on board drowned.
18 July 04	HMMWV	1- Marine	Vehicle rolled while 1/23 conducting convoy-training operations at March ARB.
22 July 04	HMMWV	1- Marine	Vehicle rolled while Marines from 2/24 were training at



Tactical Vehicle Safety

- **Areas of Concern:**
 - Driver Experience/Training
 - Seatbelt Usage/Reliability
 - Hardened Vehicle Egress Concerns
 - Roll-Over Protection

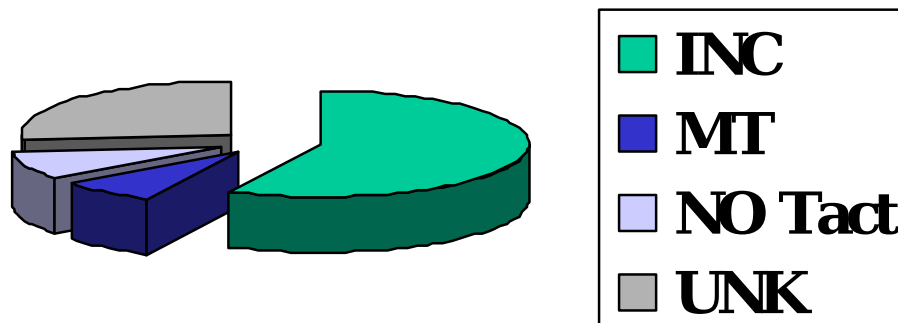




USMC HMMWV Mishaps By Licensing

Total HMMWV 68 - Mishaps

- Incidental - 39
- MT School Trained - 5
- No Tactical License - 6
- Unknown - 18



- **Note:** No Tactical License refers to students in a HMMWV Incidental driving course at the time of the mishap.

Jan 1997 to July 26, 2000



Driver Experience/Training

- Driver experience, vigilance and safe driving skills when applied can eliminate the majority of tactical vehicle mishaps.
- Additional driver's training centering on awareness, use of night vision goggles, vehicle emergency egress drills, and familiarization of local hazards, (e.g. canals in Iraq), are essential and should be an on-going effort.
- Conditions presented in Iraq (or any combat area) that affect a tactical vehicle driver include; lack of proper rest, lack of sufficient driver experience, excessive speed going to/coming from objective



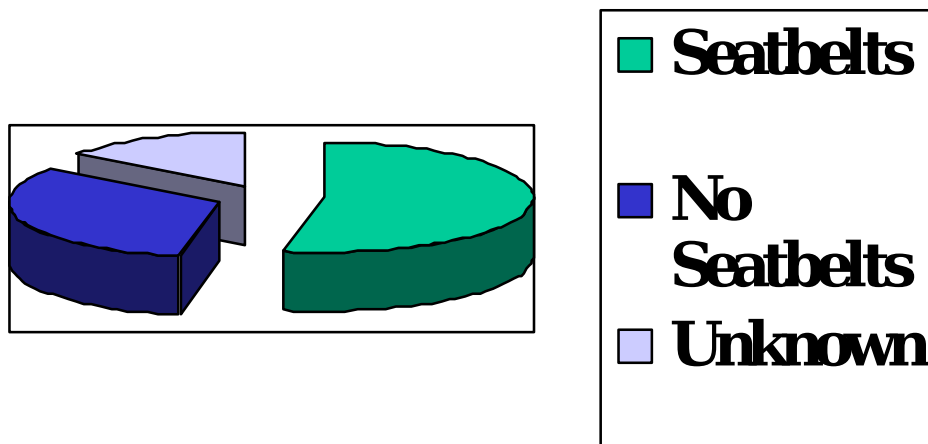


Driver Experience/Training

- **Training Should Include:**
 - Detailed egress training, and adequate daytime/NVD drivers training time as part of the HMMWV operators course for incidental drivers.
 - Training devices should include actual “up armored HMMWVs” and Marines must wear the full combat load out they would in theater.
 - Explore the feasibility of funding and developing a HMMWV egress trainer, egress drills must include “blindfold egress procedures” in which Marines develop the muscle memory to find and release their restraint system without visual aid, grab a reference point and open the door/window then egress. Such drills have been shown to save the lives of aircrews performing emergency egress from helicopters.



USMC Seatbelt Usage



■ Total Mishaps - 68

■ Seatbelts - 36

■ No Seatbelts - 22

■ Unknown - 10

Jan 1997 to July 26, 2004



Seatbelt Usage/Reliability

What the Troops have to say:

- Plastic seatbelt mechanisms do not fare well in the smothering sand and dust. As soon as they become difficult to operate they are not used.
- The inertial reel on the shoulder belt portion quickly gums up, many do not work at all, and few personnel use them.
- The rear shoulder belt in the HMMWV is too low for tall personnel and, as a result, rarely used by tall personnel.



Seatbelt Usage/Reliability

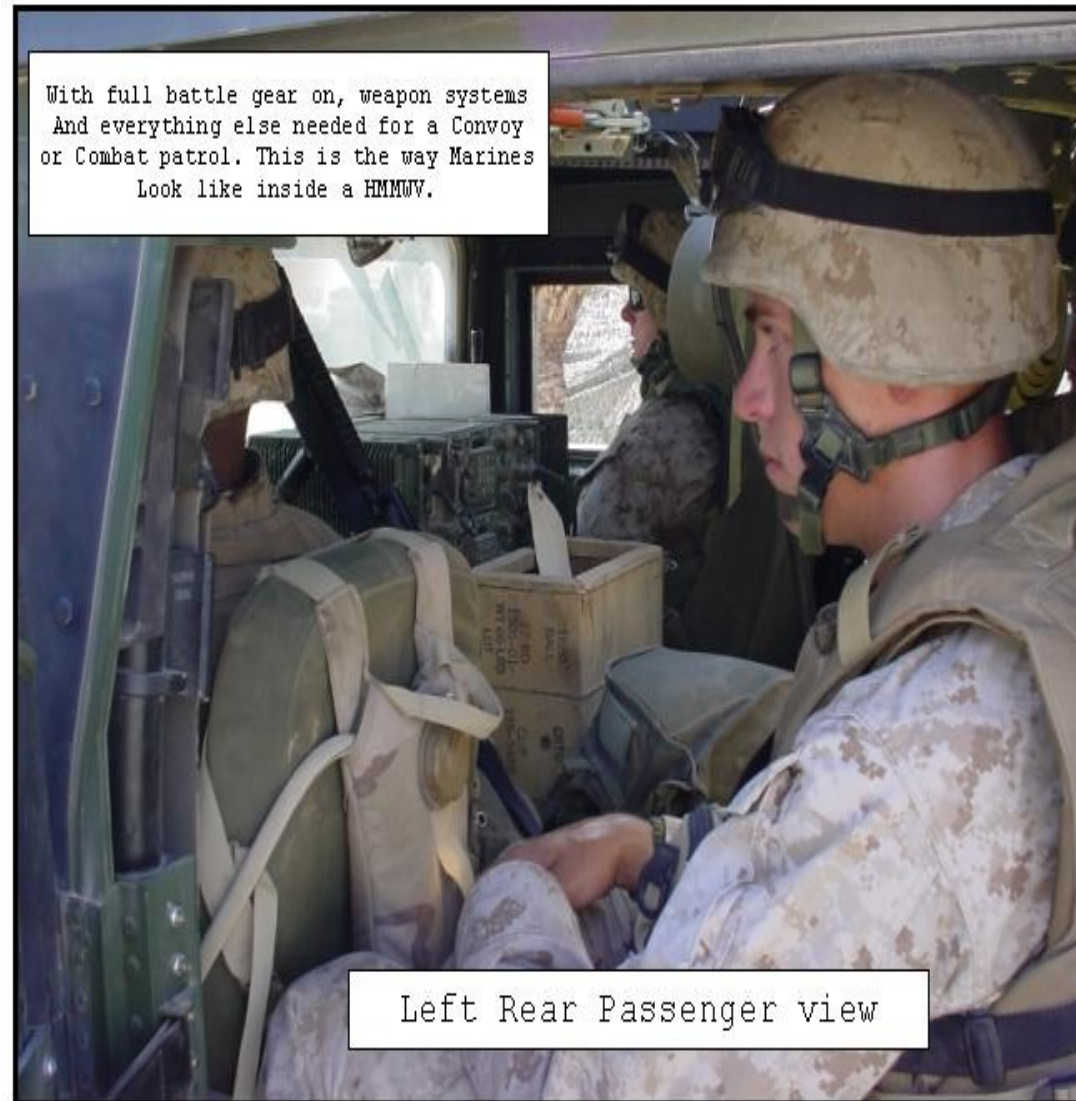
What the Troops have to say:

- Seatbelts often will not fit around all of the gear being worn.
- A restraint system, which inhibits movement in a combat situation, will be discarded.
- Seatbelt release points are not easily accessed or are blocked by positions required for quick reaction under fire.
- A restraint system, which hinders rapid egress, or is perceived to hinder rapid egress, will not



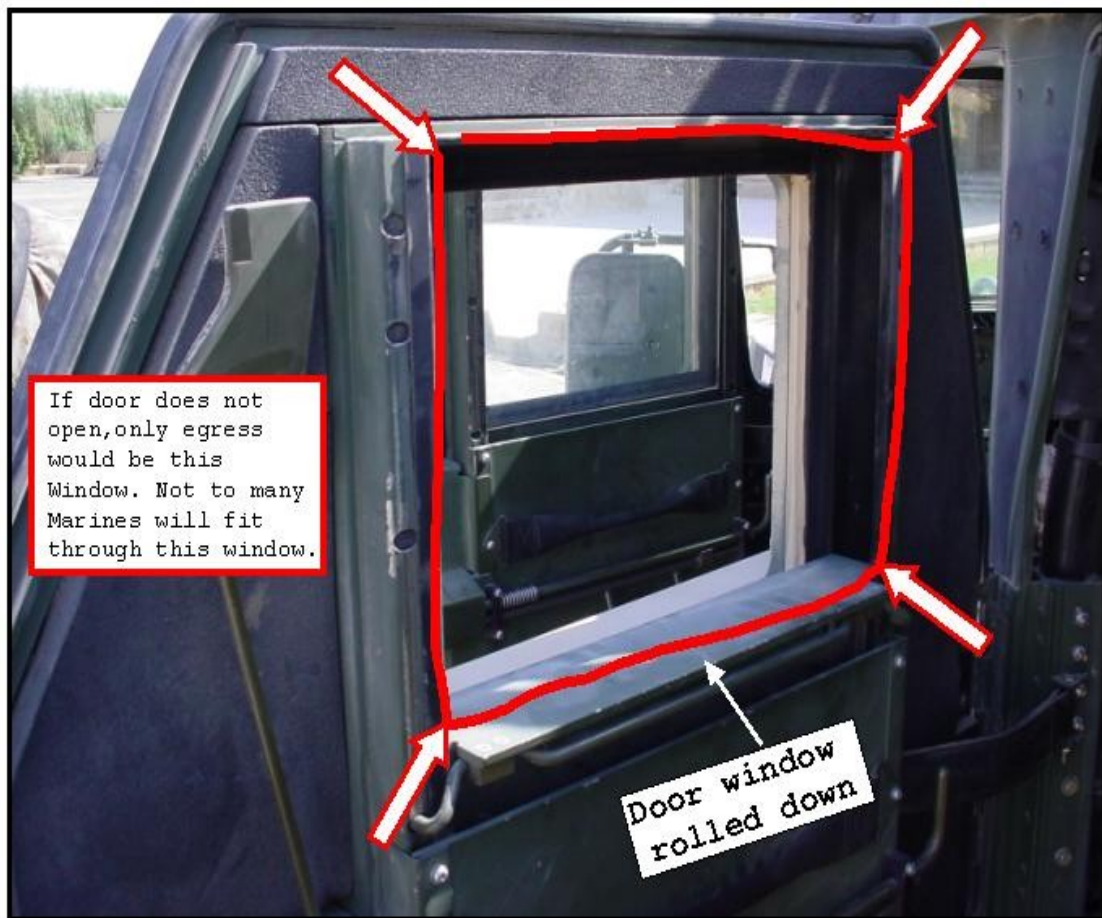
Seatbelt Usage/Reliability

- **Recommend an easily accessible/quick release four point seatbelt system.**
 - Such a system would invite greater use than the current automobile type seatbelt systems.
 - This harness would be very similar to those used in aviation which offer sturdy restraint, can be adjusted to fit over gear, and can be quickly released in a simple movement with either hand, facilitating easy egress once released.
 - The inertial reel portion of the shoulder straps would have to be substantial enough for use in all weather environments.





Hardened Vehicle Egress Concerns



- If vehicle ends up on one side, or is submerged in a canal, doors are extremely difficult to push open. This is critical for timely egress in the event of a vehicle fire or being under water.



Hardened Vehicle Egress Concerns





Hardened Vehicle Egress Suggestions

- Aircraft type doors/windows consisting of quick release handles providing escape through an opening that a Marine could fit through.
- A cotter pin type quick release installed on the door hinges. This may assist with quick egress from the vehicle within 2-5 seconds.
- Windshields that can be pushed out from the inside, but not pushed in from the outside. Perhaps with a quick release handle similar to the doors.



Roll-Over Protection

- The upper seat belt bracket on the MTRV is located above the shear line of the cab. In two recent 1st MARDIV mishaps, the shear point worked as advertised when the trucks rolled, but it took the seat belt bracket with it resulting in injury to personnel in both instances.





Roll-Over Protection

- The LVS cab easily crushes when the LVS is rolled.





Roll-Over Protection

- Pursue the incorporation of a roll bar or similar device for the LVS.
- Incorporate a roll bar system on the MTRV that protects the seatbelt post from failure.



The End

